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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,560	02/11/2002	Hsing-Yao Chen	60	5053

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EXAMINER
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GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/073,560

Applicant(s)

CHEN ET AL.

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 05/02. 6) ☐ Other: \_\_\_\_

### ***Drawings***

(1) The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "16a" and " 18a" in Fig 1, are not pointing to proper apertures of the grids, rather all have been used to designate aperture 20a of grid 20.

(2) The drawings are objected to because "Eb source" in Fig 2 is designated by reference # 62, while in specification page 11, line 9, "Eb source is designated as # 94".

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 15 is objected to because of the following informalities: In claim 15, line 7, the typographical error in word "ore" should be "more". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said single common aperture" in line 5 of claim 14. As there is no earlier recitation of "single common aperture" in the claim, it is unclear

as to what element the limitation is referring. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kimiya et al. (US 6339293).

Regarding claim 1, Kimiya et al. disclose an electron gun for a cathode ray tube comprising a cathode (KR, KG, KB of Fig 7A, line 51-52 of column 6) for providing energetic electrons; a beam forming region, BFR, (first two grids 1, 2, and lower part of 3) aligned with the cathode and disposed intermediate cathode and the display screen (3 of Fig 1), BFR includes plural spaced first charged grids each having one or more first aligned apertures (Fig 7A, and Fig 7b) wherein the electrons are directed through the first aligned apertures, increases in cross section in proceeding from BFR, and an electrostatic lens disposed intermediate BRF and the display screen including plural second grids ( upper part of 3, and grids 4 & 5) charged by a respective focus voltage (Fig 7B), each of the second grids having one or more second aligned apertures through which electron beam is directed for focusing on the display screen (see Fig 7A)

wherein the second aligned apertures decrease in size in proceeding in a direction from the display screen toward BFR (lines 53-65 of column 6). Further functional recitation of claimed structure of electron gun is inherent, since Kimiya's electron gun satisfy all the claimed structural limitations, and since function follows the form.

Regarding claim 2, Kimiya et al. disclose a color CRT (line 15 of column 3) having three cathodes for providing three groups of energetic electrons and each of first grids includes three apertures each adapted to receive and form a respective group of energetic electrons into a narrow beam (see Fig 7A).

Regarding claim 3, Kimiya et al. disclose that three apertures in each of the first charged grids are arranged in an in-line array (see Fig 7A).

Regarding claim 4, Kimiya et al. disclose that BFR includes a first grid 1, a second grid 2, and a bottom portion of a third grid 3 (Fig 7A).

Regarding claim 5, Kimiya et al. disclose that the electrostatic lens includes a top portion of said third grid 3, and plural spaced aligned focus grids (4, 5 ) disposed intermediate said third G3 grid and the display screen (Fig 7A).

Regarding claim 6, Kimiya et al. disclose that electrostatic lens includes dynamic quadrupole lens (see Fig 9) for compensating for astigmatism of the electron beams on the display screen as the electron beams are displaced over the display screen in a raster-like manner (see Fig 7B, and Fig 9).

Regarding claim 7, Kimiya et al. disclose that the dynamic quadrupole lens includes two or three charged elements (grids 3, 4, 5).

Regarding claim 8, Kimiya et al. disclose that the electrostatic lens includes

plural dynamic quadrupole lenses (Fig 5) disposed in a spaced manner between said BFR (GE region of Fig 3) and the display screen for compensating for astigmatism of the electron beams on the display screen (lines 4-6 of column 1).

Regarding claim 9, Kimiya et al. teach that each dynamic quadrupole lens includes two or three charged elements (grids 3, 4, 5 of Fig 7B).

Regarding claim 10, Kimiya et al. disclose that the electrostatic lens comprises a dynamic focus lens (formed between grid 3 and 4 and between 4 and 5) disposed adjacent said BFR and a main focus lens (EL), disposed intermediate said dynamic focus lens and the display screen (see Fig 5).

Regarding claim 11, Kimiya et al. disclose that said second aligned apertures are disposed in second grids in said dynamic focus lens (lines 41-44 of column 7).

Regarding claim 12, Kimiya et al. teach that said electrostatic lens includes a dynamic quadrupole (QL1) and said second grids include a third grid (4) having a fixed focus voltage and fourth grid (3, 5) having a dynamic focus voltage (see Fig 7A, & 7B).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the

examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimiya et al. as applied to claim 1 above, and further in view of Chen et al. (US 5055749).

Regarding claims 13 & 14, Kimiya et al. disclose all the claimed limitations of claims 13 & 14, except for the fourth electrodes (3, 5) having dynamic focus voltage, does not include a single common aperture having plural spaced enlarged portion each aligned with the respective spaced plural apertures of the third grid (4).

However, Chen et al. teach 4<sup>th</sup> grid (in this case grid 28, 32 having dynamic voltage, see Fig 2) includes a single common aperture (28a, 32a) having plural spaced enlarged portion each aligned with the respective spaced plural apertures of the third grid (30a, 30b, 30c of grid 30). This type of aperture arrangement converges off-axis electron beams in a three-beam color cathode ray tube (lines 59-62 of column 2).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement a single common aperture having plural spaced enlarged portion for the 4<sup>th</sup> grid (3 & 5, grid 5 apertures are larger than grid 4, while aperture of grid 3 is smaller than grid 4) of Kimiya's device, each enlarged portion is aligned with the respective spaced plural apertures of the third grid (4) of Kimiya's device, as suggested by Chen et al., since this arrangement will converge off-axis electron beams.

Regarding claim 15, Kimiya et al. disclose an electron gun for a cathode ray tube comprising a cathode (KR, KG, KB of Fig 7A, line 51-52 of column 6) for providing

energetic electrons; a beam forming region (first two grids 1, 2, and lower part of 3) aligned with the cathode and disposed intermediate cathode and the display screen (3 of Fig 1), BFR includes plural spaced first charged grids each having one or more first aligned apertures (Fig 7A, and Fig 7b) wherein the electrons are directed through the first aligned apertures, increases in cross section in proceeding from BFR, and an electrostatic lens disposed intermediate BRF and the display screen including plural second grids ( upper part of 3, and grids 4 & 5) charged by a respective focus voltage (Fig 7B), each of the second grids having one or more second aligned apertures through which electron beam is directed for focusing on the display screen (see Fig 7A), said electrostatic lens including first and second dynamic quadrupoles each having respective third grid (4) and respective fourth grid (3, 5). Here first quadrupole is formed between grid 3 and grid 4, second quadrupole is formed between grid 4 and grid 5. Kimiya et al. further teach that spaced apertures in third grid (4) is larger than apertures in fourth grid (3) where this fourth grid (3) is disposed intermediate cathode and the associated third grid (4, see Fig 7A) while apertures in third grid (4) is smaller than apertures in fourth grid (5) where third grid (4) is disposed intermediate the cathode and the associated fourth grid (5). See lines 53-65 of column 6.

But Kimiya et al. fail to teach that the fourth electrodes (3, 5) which having dynamic focus voltage does not include a single common aperture having plural spaced enlarged portion each aligned with the respective spaced plural apertures of the third grid (4).



However, Chen et al. teach 4<sup>th</sup> grid (in this case grid 28, 32 having dynamic voltage, see Fig 2) includes a single common aperture (28a, 32a) having plural spaced enlarged portion each aligned with the respective spaced plural apertures of the third grid (30a, 30b, 30c of grid 30). This type of aperture arrangement converges off-axis electron beams in a three-beam color cathode ray tube (lines 59-62 of column 2).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement a single common aperture having plural spaced enlarged portion for the 4<sup>th</sup> grid (3, 5) of Kimiya's device, each enlarged portion is aligned with the respective spaced plural apertures of the third grid (4) of Kimiya's device, as suggested by Chen et al., since this arrangement will converge off-axis electron beams.

#### ***Other Prior Art Cited***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure : Chen et al. (US 5488265); Gorski et al. (US 6013976); Kimiya et al. (US 6608435); Kimiya et al. (US 6313575).

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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